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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,761	09/29/2003	Laurent Lefebvre	00100.02.0046	1469
29153	7590	10/05/2005	EXAMINER	
ATI TECHNOLOGIES, INC. C/O VEDDER PRICE KAUFMAN & KAMMHOLZ, P.C. 222 N.LASALLE STREET CHICAGO, IL 60601			NGUYEN, HAU H	
			ART UNIT	PAPER NUMBER
			2676	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/673,761	Applicant(s) LEFEBVRE ET AL.	
	Examiner Hau H. Nguyen	Art Unit 2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-4, 6, 8-16, 20-22 and 24 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 17-19, 23 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

ck

***Response to Arguments***

1. Applicant's arguments, filed June 26, 2005, with respect to the rejections of claims 1-25 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Nakamura et al. (U.S. Patent No. 5,550,962).

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6, 8, 9, 11, 20-22, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U.S. Patent No. 5,550,962).

Referring to claims 1, 2, 6, 8, and 9, as shown in Fig. 1, Nakamura et al. teach a graphics processing system, comprising a client program 101, a drawing command execution control mechanism 102, a drawing library 103, a drawing server 104, a dispatcher 105, drawing threads 106a and 106b, thread execution state information 107, and display-associated hardware 108 (col. 4, lines 2-9). As shown in Fig. 9 with reference to Fig. 1, Nakamura et al. teach the command dispatcher (an arbiter) retrieving a first command from the target client 101 (a first reservation station) (step 702), and at step 708, the system goes to a step 708 and invokes a drawing processing block thread initiator to execute the drawing command Inst (command processing engine/ALU). Nakamura et al. then teach the system goes to a step 710 to judge

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whether or not the variable EndFlag is at 'True' (setting a done flag). If it is determined at the step 710 that the judgment is "N", then the system goes to the step 702 to repeat the dispatching operation of the sequential command (col. 7, lines 57-67, and col. 8, lines 1-42) (updating the command thread in the reservation station). As shown in Fig. 14, Nakamura et al. further teach a second reservation station 101b.

In regard to claims 4 and 11, as shown in Fig. 5, Nakamura et al. teach the retrieved commands are interleaved (col. 6, lines 48-67, and col. 7, lines 1-27).

As for claims 20 and 22, as cited above, as cited above, Nakamura et al. teach retrieving a selected command thread, providing the command thread to the graphics processing engine, and executing the selected command. As shown in Fig. 5, Nakamura et al. further teach providing the selected command to a first reservation station if the selected command is of a first command thread (sequential processing block) and providing the selected command to a second reservation station if the selected command is of a second command thread (parallel processing block).

In regard to claim 21, as shown in Fig. 5 and cited above, Nakamura et al. also teach interleaving the first command thread and the second command thread.

In regard to claim 24, as cited above, Nakamura et al. teach setting a done flag when all the commands with the selected command thread have been executed.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 8, 12-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Airey et al. (U.S. Patent No. 6,650,327).

Referring to claims 8, 12-15, as shown in Fig. 2, Airey et al. teach vertex data 131 and pixel data 132 are loaded from the memory of central processor 102 and saved in a display list 133 (thus, it is implied a vertex reservation station and a pixel reservation located in the memory of the central processor 102). When the display list 133 (an arbiter) is executed, the evaluators 134 derive the coordinates, or vertices, that are used to describe points, lines, polygons, and the like, referred to in the art as "primitives." From this point in the process, vertex data and pixel data follow a different route through the graphics program (col., lines 49-56). Airey et al. also teach the display list 133 providing pixel commands to the pixel operations 136 which in turn provides output to the texture assembly 137 (texture engine); and the display list 133 also provides vertex commands to the per-vertex operations and primitive assembly 135 (an ALU).

In regard to claim 16, since Airey et al. teach the display list 133 retrieves and stores a plurality of vertex commands, and provides to the ALU 135, these commands may be interleaved in the display list 133.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 5,550,962).

Referring to claim 10, although Nakamura et al. do not explicitly disclose the second reservation station is a FIFO memory device, Nakamura et al. do teach the drawing instructions from the client are sequentially processed in its arrival order within the drawing server, which ensures the consistency of the graphics display (col., lines). Therefore, it would have been obvious to one skilled in the art to implement the memory device as taught by Nakamura et al. using a FIFO in order to process the graphics commands in order to maintain the order of the received commands.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 5,550,962) in view of Wyatt et al. (U.S. Patent Application No. 20040/041814).

Referring to claim 3, as cited above, Nakamura et al. teach all the limitations claim 3, except that the arbiter retrieve the commands based on a priority scheme.

However, Wyatt et al. teach a method of processing graphics commands, wherein as shown in Fig. 1, comprises a plurality of queues 18-20 for storing assigned commands received from the threads A-C. Wyatt et al. further teach the queues are coupled to command parser 22. Command parser 22 fetches the commands from the plurality of queues. The command parser 22 can be configured to fetch commands based on an arbitration scheme in which certain queues have higher priority than others (paragraph 23, page 2).

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Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Wyatt et al. in combination with the method as taught by Nakamura et al. in order to synchronize instruction processing from multiple instruction queues (paragraph 1, page 1).

9. Claims 5, 7, 17-19, 23, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778.

The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

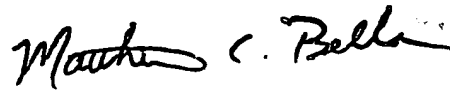
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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-2 17-9197 (toll-free).

H. Nguyen

09/27/2005

A handwritten signature in black ink, appearing to read "Matthew C. Bella".

MATTHEW C. BELLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600